

इंटरनेट

मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 8190-2 (1988): Requirement for packing of pesticides,
Part 2: Liquid pesticides [FAD 1: Pesticides and Pesticides
Residue Analysis]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

BLANK PAGE



Indian Standard (Reaffirmed 2004)

REQUIREMENTS FOR PACKING OF PESTICIDES

PART 2 LIQUID PESTICIDES

(*Second Revision*)

Second Reprint JANUARY 1991

UDC 632.951-404 : 621.798

© Copyright 1988

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Indian Standard

REQUIREMENTS FOR PACKING OF PESTICIDES

‘PART 2 LIQUID PESTICIDES

(*Second Revision*)

0. FOREWORD

0.1 This Indian Standard (Part 2) (Second Revision) was adopted by the Bureau of Indian Standards on 3 October 1988, after the draft finalized by the Packaging of Chemicals Sectional Committee had been approved by the Marine, Cargo Movement and Packaging Division Council.

0.2 This standard, issued in 1976, was first revised in 1980. This second revision has been undertaken to incorporate the packing requirements for pesticides as modified through various amendments issued subsequently and also to include packing requirements for some pesticides for which the related Indian Standard Specifications have been published in the meanwhile. For some pesticides, technical and their formulations, the packing requirements have been suitably changed wherever new/alternative packing materials have been approved.

Since the packing requirements covered in this standard have been adopted by the Registration Committee constituted under the provisions of the Insecticides Act, 1968, this standard assumes statutory character.

0.3 The list of Indian Standards relating to packaging referred to in this standard is given in Appendix A.

0.4 This standard has been published in four parts. This part (Part 2) covers the requirements for packing of liquid pesticide. The other parts are:

Part 1 Solid Pesticides

Part 3 Household Pesticides

Part 4 Fumigants

1. SCOPE

1.1 This standard (Part 2) covers the requirements for packing of liquid pesticides.

1.2 This standard does not cover the packing requirements for liquid pesticides meant for household use and fumigants.

2. GENERAL REQUIREMENTS

2.1 The liquid pesticides, technical and their formulations, except otherwise specified in Tables 1 to 3 shall be packed in containers in the quantities of 100 ml, 250 ml, 500 ml, 1 l, 5 l, 10 l, 20 l, 25 l and 50 l. Technical grade and emulsifiable concentrates meant for bulk consumption may also be packed in quantities of 200 litres in a container.

2.2 Retail packs up to 1 litre shall be further packed in corrugated fibreboard boxes [see IS : 2771 (Part 1)-1977] or wooden cases (see IS : 1503-1979) when they require transportation.

2.3 The high density polyethylene (HDPE) used in the fabrication of HDPE container or its components shall be of designation HDPE 43BA,

42BA or 42BB having melt flow index (i_b) not more than 1.8 g/10 min (see IS : 7328-1974).

2.4 Aluminium used in the fabrication of containers (see IS : 9503-1980) shall conform to Grade 19 500 of IS : 737-1974*.

2.5 Containers of mild steel and tinplate shall also be painted/lacquered externally to prevent rusting from outside, if not lithographed. If lithographed, top and bottom components shall be lacquered externally.

2.6 Closures provided shall be such as not to allow any material to leak through them. These shall be tamperproof.

2.7 Containers holding 5 litres or more of liquid pesticides shall be provided with a suitable pouring device with each container.

2.8 The packing shall also conform to the tariff rules in force from time to time for the packing

*Specification for wrought aluminium and aluminium alloy sheet and strip for general engineering purposes (second revision).

of goods falling in the category of materials of low flash point, dangerous and toxic, wherever applicable.

~2.9 The containers shall be of sturdy design and shall conform to the relevant Indian Standards.

3. SPECIFIC REQUIREMENTS

3.1 Technical Grade Pesticides — The

technical grade pesticides shall be packed in dry and clean containers as described in Table 1.

3.2 Emulsifiable Concentrates — The emulsifiable concentrates shall be packed in dry and clean containers as described in Table 2.

3.3 Other Liquid Formulations — The following liquid formulations shall be packed in clean and dry containers as described in Table 3.

TABLE 1 REQUIREMENTS FOR PACKING OF LIQUID PESTICIDES, TECHNICAL GRADE
(Clause 3.1)

SL Nn.	PESTICIDES	REQUIREMENTS
(1)	(2)	(3)
i)	Cypermethrin (<i>see</i> IS : 12015-1987); Cypermethrin concentrate (<i>see</i> IS : 12017-1987); Diazinon (<i>see</i> IS : 1833-1980); Disulfoton (<i>see</i> IS : 7977-1976); Fenitrothion (<i>see</i> IS : 5280-1969); Fenthion (<i>see</i> IS : 7950-1976); Fenvalerate (<i>see</i> IS : 12003-1987); Formorhion (<i>see</i> IS : 8024-1976); Malathion (<i>see</i> IS : 1832-1978); Methyl parathion (<i>see</i> IS : 2570-1980); Methyl parathion concentrate (<i>see</i> IS : 9372-1980); Oxydemeton-methyl concentrates (<i>see</i> IS : 8258-1976); Phenthoate (<i>see</i> IS : 8293-1976); Phorate (<i>see</i> IS : 7976-1976); Temephos (<i>see</i> IS : 8701-1978); Thiometon concentrated (<i>see</i> IS : 3904-1966)	Mild steel drums suitably and properly lacquered from inside. Cypermethrin (<i>see</i> IS : 12015-1987) may also be packed in aluminium containers (<i>see</i> IS : 9445-1980)
ii)	Parathion ethyl (<i>see</i> IS : 2128-1973)	Mild steel drums
iii)	Chlordane (<i>see</i> IS : 2863-1964); Irobornyl thiocynoacetate (thanite) (<i>see</i> IS : 7158-1973)	Aluminium clad iron containers or high backed phenolic enamel lined metal containers
iv)	Dichlorvos (<i>see</i> IS : 4929-1978)	HDPE drums of 1.75 to 2.25 mm thickness. The HDPE drums shall be repacked in mild steel drums with removable lid and having bolt-type closing ring. For packs of 5 litres, HDPE containers conforming to IS : 6312-1980 shall be used
v)	Phosphamidon (<i>see</i> IS : 4958-1968)	HDPE drums of 1.75 to 2.25 mm thickness. The HDPE drums shall be repacked in mild steel drums with a removable lid and having bolt-type closing ring
vi)	Dicofol (<i>see</i> IS : 5278-1969)	Mild steel containers suitably lacquered or anodized aluminium drums
vii)	Monocrotophos (<i>see</i> IS : 8025-1983)	Mild steel containers, suitably and properly lacquered or HDPE containers fitted in mild steel containers
viii)	Butachlor (<i>see</i> IS : 9355-1980); Edifenphor (<i>see</i> IS : 8954-1978); Fluchloralin concentrate (<i>see</i> IS : 8958-1978); Quinalphoa (<i>see</i> IS : 8072-1984); Tridemorph (<i>see</i> IS : 9667-1980)	Mild steel drums, suitably and properly lacquered from inside. Aluminium containers (<i>see</i> IS : 9503-1980 and IS : 9445-1980) may also be used

TABLE 2 REQUIREMENTS FOR PACKING OF EMULSIFIABLE CONCENTRATES
(Clause 3.2)

SL No.	PESTICIDES	REQUIREMENTS
(1)	(2)	(3)
i)	Alachlor (<i>see</i> IS : 9354-1980); Aldrin (<i>see</i> IS : 1307-1982); BHC (<i>see</i> IS : 632-1978); Butachlor (<i>see</i> IS : 9356-1980); Chlordane (<i>see</i> IS : 2682-1984); DDT (<i>see</i> IS : 633-1985); Diazinon (<i>see</i> IS : 2861-1980); Endosulfan (<i>see</i> IS : 4323-1980); Heptachlor (<i>see</i> IS : 6439-1978); Malathion (<i>see</i> IS : 2567-1978); Toxaphene (<i>see</i> IS : 7946-1976); Triallate (<i>see</i> IS : 9358-1980)	Mild steel or tinplate containers suitably and properly lacquered from inside

(Continued)

TABLE 2 REQUIREMENTS FOR PACKING OF EMULSIFIABLE CONCENTRATES — *Contd*

Sl. No.	PESTICIDES	REQUIREMENTS
(1)	(2)	(3)
ii)	Cypermethrin (<i>see</i> IS : 12016-1987); Deltamethrin (<i>see</i> IS : 11996-1987); Fmvalerate (<i>see</i> IS : 11997-1987); Parathion, methyl (<i>see</i> IS : 2865-1978)	100 to 1 000 ml packing in aluminium containers conforming to IS : 9503-1980. Five litres packing in aluminium containers conforming to IS : 9445-1980. The bottleneck finish shall be such as to provide a leak-proof and pilfer-proof closure system. Aluminium containers shall be wrapped individually in transparent polyethylene bags of minimum thickness 0.075 mm which shall be closed by heat sealing and shall contain adequate space to collect the leaking material, if any. Cypermethrin 10% EC may also be packed in PET bottles of 250, 500 and 1 000 ml capacity with leak-proof and pilferproof closure system
iii)	Chlorpyrifos (<i>see</i> IS : 8944-1978); Dimethoate (<i>see</i> IS : 3903-1984); Fenthion (<i>see</i> IS : 7948-1976); Formothion (<i>see</i> IS : 8026-1976); Fenitrothion (<i>see</i> IS : 5281-1979); Fluchloralia (<i>see</i> IS : 8959-1978); Oxydemeton-methyl (<i>see</i> IS : 8259-1976); Phosnlone (<i>see</i> IS : 8487-1977); Quinalphos (<i>see</i> IS : 8028-1976); Temrphos (<i>see</i> IS : 8498-1977); Thiometon (<i>see</i> IS : 3905-1966); Tridemorph (<i>see</i> IS : 9656-1980)	Mild steel or tinplate containers, suitably and properly lacquered from inside. Aluminium bottles or round OT aluminium containers (<i>see</i> IS : 9503-1980 and IS : 12340-1988) may also be used. Quinalphos (<i>see</i> IS : 8028-1976) may also be packed in a 4 litre container made of tinplate suitably and properly lacquered from inside
iv)	Binapacryl (<i>see</i> IS : 4325-1967)	Aluminium (<i>see</i> IS : 9503-1980) or tinplate containers. Tinplate containers shall be lacquered twice, internally
v)	Chlormequat chloride aqueous solution (<i>see</i> IS : 8962-1978); Dichlorvos (<i>see</i> IS : 5277-1978); Monocrotophos water soluble concentrates (<i>see</i> IS : 8074-1983); (<i>see</i> Note) phosphamidon water soluble concentrates (<i>see</i> IS : 6177-1981)	Mild steel or tinplate containers suitably and properly lacquered from inside or HDPE containers of 1'75 to 2'25 mm thickness. HDPE containers shall be heat-sealed with HDPE plugs finally closed with HDPE screw caps. These containers shall be repacked in mild steel drums with a removable lid having bolt-type closing ring. For packs of 5 l, HDPE containers conforming to IS : 6312-1980 shall be used. For smaller packs up to 1 000 ml, HDPE containers conforming to IS : 9754-1981, or galvanized tin containers suitably and properly lacquered from inside shall be used
.vi)	Dicofol (<i>see</i> IS : 5279-1969); Propanil (<i>see</i> IS : 8027-1976)	Mild steel or tinplate containers suitably and properly lacquered from inside. Alternatively, anodized aluminium drums may be used
vii)	Pyrethrum (<i>see</i> IS : 4808-1982)	Aluminium (<i>see</i> IS : 9503-1980) or mild steel or tinplate containers
viii)	Phenthoate (<i>see</i> IS : 8291-1976)	Mild steel or tinplate containers suitably and properly lacquered from inside. Aluminium containers may also be used. Aluminium containers shall be wrapped individually in transparent polyethylene bags of minimum thickness 0.125 mm which shall be closed by heat-sealing and shall contain adequate space to collect the leaking material, if any
ix)	Paraquat dichloride water soluble concentrates (<i>see</i> IS : 8497-1982)	Mild steel containers suitably and properly lacquered from inside or HDPE containers of wall thickness not less than 1 mm
x)	Nitrofen (<i>see</i> IS : 8957-1978)	Mild steel or aluminium or HDPE containers. Mild steel containers shall be suitably and properly lacquered from inside
xi)	Edifenphos (<i>see</i> IS : 8955-1978)	Mild steel containers suitably and properly lacquered from inside. Aluminium containers (<i>see</i> IS : 9503-1980) may also be used

NOTE — Monocrotophos water soluble concentrates (*see* IS : 8074-1983), when packed in HDPE containers of 100 ml to 5 litres capacity, may be sealed by mechanical seal proofing arrangement as a tight HDPE bung insertion and a ring operated pilferproof ratchet type HDPE screw cap as an alternate to heat-sealing provisions. If solvents of aromatic hydrocarbon origin are used in making the formulation, HDPE containers shall not be used for packing that formulation.

TABLE 3 REQUIREMENTS FOR PACKING OF LIQUID FORMULATIONS OTHER THAN TECHNICAL AND EMULSIFIABLE CONCENTRATES

(Clause 3.3)

Sl No.	PESTICIDES	REQUIREMENTS
(1)	(2)	(3)
i)	Lime sulphur solution (~~see~~ IS : 1050-1984); Mosquito larvicidal oil (~~see~~ IS : 588-1978)	Mild steel containers
ii)	Emulsifiable larvicidal oil, pyrethrum based (~~see~~ IS : 6014-1978); Pyrethrum extracts (~~see~~ IS : 1051-1980)	Mild steel or tinplate containers. <i>Galvanized steel containers shall not be used for packing of pyrethrum extracts</i>
iii)	Nicotine sulphate solution (~~see~~ IS : 1055-1984)	Mild steel or tinplate containers suitably and properly lacquered from inside
iv)	Liquid amine salts of MCPA (~~see~~ IS : 8295-1976)	Mild steel containers suitably and properly lacquered from inside. Tinplate containers suitably and properly lacquered from inside may be used for packing up to 10 litres of material
v)	Liquid amine salts of 2,4-D (~~see~~ IS : 1827-1984)	Mild steel or tinplate or HDPE containers

APPENDIX A

(Clause 0.3)

INDIAN STANDARDS RELATING TO PACKAGING

IS :

1503- 1979 Wooden packing cases (*second revision*)2771 (Part 1)-1977 Corrugated, fibreboard: Part 1 Corrugated fibreboard boxes (*first revision*)6312- 1980 Polyethylene containers for the transport of materials (*first revision*)

7328- 1974 High density polyethylene material for moulding and extrusion

9445-1980 Aluminium containers for packing liquid pesticides (capacity 5 litres and above)

9503-1980 Aluminium bottles for packing of liquid pesticides

9754-1981 High density polyethylene containers for packing of liquid pesticides (up to 1 litre capacity)

12340- 1988 Round open top aluminium containers for liquid pesticides

Bureau of Indian Standards

BIS is a statutory institution established under the ***Bureau of Indian Standards Act, 1986*** to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending-to connected matters in the country.

Copyright

BIS has the copyright of all its publications. No part of these publications may be reproduced in any form without the prior permission in writing of BIS. This does-not preclude the free use, in the course of implementing the standard, of necessary details, such as symbols and sizes, type or grade designations. Enquiries relating to copyright be addressed to the Director (Publications), BIS.

Revision of Indian Standards

Indian Standards are reviewed periodically and revised, when necessary and amendments, if any, are issued from time to time. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition. Comments on this Indian Standard may be sent to BIS giving the following reference .:

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters :

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones : 331 01 31, 331 13 75

Telegrams : Manaksanstha
(Common to all Offices)

Regional Offices :

Central : Manak Bhavan, 9 Bahadur Shah **Zafar** Marg
NEW DELHI 110002

Telephono
{ 331 01 31
331 13 75

Eastern :**1/14** C.I.T. Scheme VII M, V.I.P. Road, Maniktola
CALCUTTA 700054

36 24 99

Northern : SCO 445-446, Sector **35-C**, CHANDIGARH 160036

{ 23 16 1843 41

Southern: C.I.T. Campus, 4 Cross Road. MADRAS 600113

{ 41 24 42
41 25 19
41 29 16

Western : Manakalaya, E9 MIDC, **Marol**, Andheri (East)
BOMBAY 400093

6 32 92 95

Branches : AHMADABAD. BANGALORE. BHOPAL. BHUBANESWAR.
GUWAHATI. HYDERABAD. JAIPUR. **KANPUR**. PATNA.
TRIVANDRUM.

AMENDMENT NO. 1 DECEMBER 1990
TO
IS 8190 (Part 2) : 1988 REQUIREMENTS FOR
PACKING OF PESTICIDES

PART 2 LIQUID PESTICIDES

(Second Revision)

(**Page 2, Table 1**) — Substitute the following for the existing matter under **col 2** at **Sl No. (vii)**:

‘**vii**) Monocrotophos (see IS 8025 : 1983);
Thiobencarb (see IS 12768 : 1989)’;

(**Page 2, Table 2**) — Substitute the following for the existing matter under **col 3** at **Sl No. (i)**:

‘**Mild** steel or **tinplate** containers suitably and properly lacquered from inside. Chlordane and endosulfan may also be packed in aluminium containers (see IS 9445 : 1980, IS 9503 : 1980, and **IS** 12340 : 1988)’.

(**Page 3, Table 2**) — Substitute the following for the existing matter under **col 3** at **Sl No. (ii)**:

‘**Aluminium** containers (see IS 9445 : 1980, **IS** 9503 : 1980 and IS 12340 : 1988). The containers shall be wrapped individually in transparent low density polyethylene bags of minimum 0.075 mm thickness. These bags shall be closed by heat sealing and contain adequate space to collect the leaking material if any. Cypermethion 10 percent EC may also be packed in PET bottles of 100,250, 500 and 1 000 ml capacity with leakproof and pilferproof closure system.’

(**Page 3, Table 2**) — Substitute the following for the existing matter under **col 2** at **Sl No. (vii)**:

‘**vii**) Pondimethalin (see IS 12751 : 1989); Pyrethrum (see IS 4808 : 1982);
Thiobencarb (see IS 12769 : 1989)’;

(FADC 1)

AMENDMENT NO. 2 APRIL 1991
TO
IS 8190 (Part 2) : 1988 REQUIREMENTS FOR
PACKING OF PESTICIDES

PART 2 LIQUID PESTICIDES

(Second Revision)

(page 2, Table 2)— Insert the following after the existing matter under col 2 of SI No. (i):

'Ethion EC (see IS 10319 : 1982)'

(FADC 1)

Printed at Progressive Printers, Delhi, India

AMENDMENT NO. 3 JUNE 1991

TO

IS 8190 (Part 2) : 1988 REQUIREMENTS FOR
PACKING OF PESTICIDES
PART 2 LIQUID PESTICIDES
(*Second Revision*)

[*Page 3, Table 2 (see also Amendment No. 1)*] — **Substitute** the following for the existing matter under col 3 at Sl No. (ii) :

'Aluminium containers (see IS 9445 : 1980, IS 9503 : 1980 and IS 12340 : 1988). The containers shall be wrapped individually in transparent LDPE bags of not less than 0.075 mm thickness. These bags shall be closed by heat sealing and contain adequate space to collect the leaking material, if any. Cypermethrin 10 percent EC and deltamethrin EC may also be packed in PET containers of 100, 250, 500 and 1 000 ml capacity with leakproof and pilferproof closure system.'

(FADC 1)

AMENDMENT NO. 4 MAY 2002
TO
IS 8190 (PART 2) : 1988 REQUIREMENTS FOR
PACKING OF PESTICIDES
PART 2 LIQUID PESTICIDES
(Second Revision)

[*Page 2, clause 2.9*] — Insert the following new clause after **2.9**:

‘2.10 Wherever any conditions are attached in the registration certificate given by the registration committee, the same shall also be considered applicable in that product and shall be verified accordingly.’

(FAD 1)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 5 APRIL 2008
TO
IS 8190 (PART 2) : 1988 REQUIREMENTS FOR
PACKING OF PESTICIDES

PART 2 LIQUID PESTICIDES

(Second Revision)

(Page 1, clause 2.3) — Substitute the following for the existing matter:

‘The high density polyethylene (HDPE) used in the fabrication of HDPE container or fluorinated HDPE bottles and containers (*see* IS 15749 : 2007) shall be of appropriate grade with or without pigments (*see* IS : 7328).’

[Page 2, Table 2 (see also Amendment No. 1)] — Insert the following after the existing matter under col 3 of SI No. (i):

‘Alachlor 50% EC, butachlor 50% EC, endosulfan 35% EC, malathion 50% EC, triallate 50% EC, and ethion 50% EC, may also be packed in Fluorinated HDPE bottles and containers (*see* IS 15749 : 2007).’

[Page 3, Table 2 (see also Amendments No. 1 and 3)] — Insert the following after the existing matter under col 3 of SI No. (ii):

‘Cypermethrin 10% EC, cypermethrin 25% EC, deltamethrin 2.8% EC, and fenvalerate 20% EC may also be packed in Fluorinated HDPE bottles and containers (*see* IS 15749 : 2007).’

(Page 3, Table 2) — Insert the following after the existing matter under col 3 of SI No. (iii):

‘Chlorpyrifos 20% EC, dimethoate 30% EC and quinalphos may also be packed in Fluorinated HDPE bottles and containers (*see* IS 15749 : 2007).’

(Page 3, Table 2) — Insert the following after the existing matter under col 3 of SI No. (v):

‘Monocrotophos 36% SL may also be packed in Fluorinated HDPE bottles and containers (*see* IS 15749 : 2007).’

(Page 3, Table 2) — Insert the following after the existing matter under col 3 of SI No. (vi):

Amend No. 5 to IS 8190 (Part 2) : 1988

‘Dicofol 18.5% EC may also be packed in Fluorinated HDPE bottles and containers (see IS 15749 : 2007).’

(FAD 1)

Reprography Unit, BIS, New Delhi, India